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(30) Priority: **21.05.2007 GB 0709674**

(54) **Optical gas sensor**

(57) There is disclosed a gas sensor (1) comprising an electromagnetic radiation source (55), a detector (57) which is sensitive to radiation from the source (57) and a waveguide (14,16,18) which comprises at least a part of an optical path from the source (55) to the detector (57) through a gas sample, the waveguide (14,16,18) comprising a first waveguide portion (14) which extends from the radiation source (55) and a reflector (16) which

is arranged to change the direction of and laterally displace radiation conducted from the source (55) through the first waveguide portion (14) into a second waveguide portion (18) which is separate to the first waveguide portion (14) and which conducts received radiation towards the detector (57). The gas sensor (1) can be formed as a layered structure. A convoluted passage (50a,50b) allows gas access to the optical path.

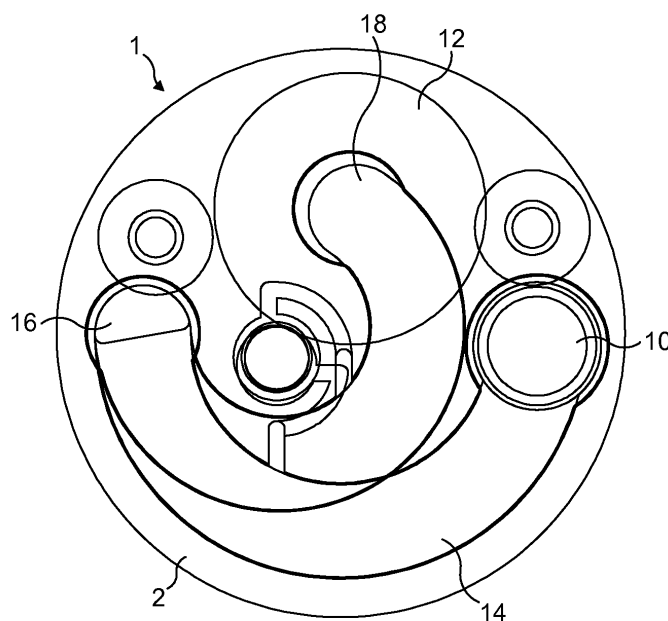


FIG. 1



EUROPEAN SEARCH REPORT

Application Number
EP 08 15 6680

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 401 432 A (DYNAMENT LTD [GB]) 10 November 2004 (2004-11-10) * page 10, line 19 - page 11, line 19; claim 1; figures 5-7 * * page 15, lines 14-16 * -----	1-9	INV. G01N21/35 G01N21/03
X	US 6 177 672 B1 (LIN YAO MIN [TW] ET AL) 23 January 2001 (2001-01-23) * column 2, line 43 - column 3, line 27; figure 1 * -----	1-4,7-9, 11	
X	US 5 060 508 A (WONG JACOB Y [US]) 29 October 1991 (1991-10-29) * column 3, line 10 - column 4, line 26; figures 1-5 * -----	1-3,7,8	
X	US 2002/105650 A1 (STUTTARD DAVID MICHAEL [GB]) 8 August 2002 (2002-08-08) * paragraphs [0001], [0003] - [0013], [0027], [0031], [0041], [0043]; figure 4 * -----	1-3,7-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			G01N G08B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 September 2008	Examiner Duijs, Eric
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- 1-12
- ☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-12

two laterally displaced waveguide portions

2. claims: 13,14

two body portions in contact with each other

3. claim: 15

a gas diffusion passage

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 15 6680

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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08-09-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2401432	A	10-11-2004	AT 371854 T	15-09-2007
			DE 602004008562 T2	21-05-2008
			EP 1544603 A2	22-06-2005
			GB 2403291 A	29-12-2004

US 6177672	B1	23-01-2001	NONE	

US 5060508	A	29-10-1991	AU 658855 B2	04-05-1995
			DE 69126443 D1	10-07-1997
			DE 69126443 T2	22-01-1998
			EP 0568549 A1	10-11-1993
			FI 933298 A	13-08-1993
			JP 2895229 B2	24-05-1999
			JP 5508929 T	09-12-1993
			NO 932669 A	23-07-1993
			WO 9311418 A1	10-06-1993

US 2002105650	A1	08-08-2002	AT 390628 T	15-04-2008
			EP 1358472 A1	05-11-2003
			GB 2372099 A	14-08-2002
			WO 02063283 A1	15-08-2002
			JP 3906377 B2	18-04-2007
			JP 2004522152 T	22-07-2004
